

Application No. 10/534,438  
Response to Office Action dated 12/06/2007

### REMARKS

Applicants request reconsideration of the claims in view of the amendments and the remarks herein. In amending claim 1, Applicants have not added new matter; support for the "single layer [of adhesive] provided under the optical waveguide device ranging from a surface of the sub-mount to the inside of the first groove" is given throughout the specification with reference to the adhesive layer, in the figures, and in the specification at page 16, lines 11-13. Claims 8-10 are allowed. Claims 17-20 were canceled in an amendment dated September 5, 2007. Claims 1-16 are pending.

#### *The objection to the drawing*

Applicants request clarification of the objection or the acceptance of the amendment to the drawing filed on March 15, 2007. This Office Action and previous Office Actions since the submission of the amended drawing indicate that the amendment is both accepted and objected to.

#### *The rejection under 35 U.S.C. §103(a)*

The Examiner and attorney Karuna Ojanen, Reg. No. 32484, held a telephonic interview on February 20, 2008. The reference Takahashi '664 was discussed with respect to claim 1. No agreement was reached.

Applicants maintain that claims 1-7 and 11-16 are not obvious in view of Takahashi '664. Applicants maintain that Takahashi '664 does not teach "an adhesive layer formed as a single layer provided under the optical waveguide device ranging from a surface of the sub-mount to the inside of the first groove, so that an end portion of the adhesive layer on the incident end side of the optical waveguide device is positioned inside the first groove so as to adhere to a surface of a wall of the first groove under the optical waveguide," as required by claim 1. According to this feature, the end portion of the adhesive layer contributes effectively to position the

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end of the optical waveguide device precisely with respect to the semiconductor laser and to retain the end of the optical waveguide device stably despite an influence of a temperature rise.

Further, Applicants disagree with the rejection's assertion that an inherent feature of Takahashi '664 is that adhesive 40 remains along a wall of the groove 35, especially when Takahashi '664 explicitly provides that groove 35 is provided to guide the flow of the adhesive to the outside. Groove 35 is analogous to Applicants' groove 12 that does have an adhesive along the surface of a wall of the first groove under the optical waveguide device. Groove 2 of Takahashi '664 having an adhesive is not the same as groove 35 which is designed to direct the flow of the adhesive to the outside. No figure of Takahashi '664 shows adhesive 40 in the groove 35 which directs the flow of the adhesive 40 outside. Adhesive 41 may possibly remain in groove 35 but Takahashi '664 does not show adhesive 41 being under the optical waveguide device. Even if adhesive 41 is provided under the optical waveguide device, it does not range from a surface of the sub-mount to the inside of the first groove. Thus, neither of the adhesive 40 or the adhesive 41 contributes to positioning the end of the optical waveguide device.

Applicants further claim that the adhesive layer is formed as a single layer; this single layer is effective in positioning the end of the optical waveguide device. Takahashi '664 teaches two adhesive layers 40 and 41, neither of which are used to position the end of the optical waveguide device to the degree of accuracy required by the Applicants.

Applicants' claimed invention addresses the criticality of the optical coupling between a laser and a waveguide; the device is repeatedly heated and the coefficients of heat expansion of the different components vary so that optical coupling can be better maintained by the single adhesive as in claim 1, *see* page 16, lines 14 through page 18, line 10. Takahashi '664 does not address this concern.

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Applicants assert that claims 2-9 and 11-16 are allowable at least by virtue of their dependence upon claim 1. Applicants do not concede the correctness of the rejection.

Applicants thus request the Examiner to withdraw the rejection of claims 1-7 and 11-16 as being obvious over Takahashi '664. Should there remain any issues that can be resolved by a telephone conference, the Examiner is invited to telephone Douglas P. Mueller, Reg. No. 30300 at 612.455.3804.



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Respectfully submitted,

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